

## **Curriculum Vitae of Virendra Prakash Ghate**

November 2016

### **PERSONAL INFORMATION**

Name: Virendra Prakash Ghate  
Place of Birth: Nagpur, India.  
Date of Birth: 30 July 1981  
Nationality: Indian (USA Permanent resident)  
Office address: Building 240, Office#7126  
Environmental Science Division,  
Argonne National Laboratory,  
9700 South Cass Avenue,  
Argonne IL 60439.  
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### **RESEARCH INTERESTS**

Boundary Layer Meteorology, Cloud Microphysics, Atmospheric Radiation.

### **TEACHING**

11:670:431 Undergraduate Physical Meteorology, Spring 2011.

### **EDUCATION**

2006-2009: PhD in Meteorology  
RSMAS/MPO, University of Miami, FL USA  
Academic advisor: Dr. Bruce A. Albrecht  
Dissertation Title: Turbulence and mass-transports in stratocumulus clouds.  
2003-2006: M.S. in Meteorology  
RSMAS/MPO, University of Miami, FL USA  
Academic advisor: Dr. Bruce A. Albrecht  
Thesis Title: Characteristics of drizzle under stratocumulus using cloud Doppler radars.  
1998-2002: B.S. in Mechanical Engineering  
Nagpur University, Nagpur, India  
Thesis Title: Design and fabrication of vortex tube.

## **EMPLOYMENT**

- 2014-present: Atmospheric Scientist, Environmental Science Division,  
Argonne National Laboratory, IL
- 2013-2014: Assistant Atmospheric Scientist, Environmental Science Division,  
Argonne National Laboratory, IL
- 2013-2015: Visiting Scientist, Department of Environmental Sciences,  
Rutgers University, NJ
- 2013-present: Fellow, The University of Chicago Computation Institute,  
Chicago, IL.
- 2009-2013: Research Associate,  
Department of Environmental Sciences,  
Rutgers University, NJ.
- 2003-2009: Graduate Research Assistant,  
Division of Meteorology and Physical Oceanography,  
University of Miami, FL.

## **AWARDS AND HONORS**

- 2007: Mary Roche fellowship in the recognition of outstanding research at  
sea and scientific excellence.

## **PEER-REVIEWED PUBLICATIONS**

Nguyen, T. K. V., **V. P. Ghate**, and A. G. Carlton, 2016: Reconciling satellite aerosol optical thickness and surface fine particle mass through aerosol liquid water, *Geophys. Res. Lett.*, **43**, doi:10.1002/2016GL070994.

Reid, J. S., Lagrosas, N. D., Jonsson, H. H., Reid, E. A., Atwood, S. A., Boyd, T. J., **Ghate, V. P.**, Xian, P., Posselt, D. J., Simpas, J. B., Uy, S. N., Zaiger, K., Blake, D. R., Bucholtz, A., Campbell, J. R., Chew, B. N., Cliff, S. S., Holben, B. N., Holz, R. E., Hyer, E. J., Kreidenweis, S. M., Kuciauskas, A. P., Lolli, S., Oo, M., Perry, K. D., Salinas, S. V., Sessions, W. R., Smirnov, A., Walker, A. L., Wang, Q., Yu, L., Zhang, J., and Zhao, Y.: Aerosol meteorology of Maritime Continent for the 2012 7SEAS southwest monsoon intensive study – Part 2: Philippine receptor observations of fine-scale aerosol behavior, *Atmos. Chem. Phys.*, 16, 14057-14078, doi:10.5194/acp-16-14057-2016, 2016.

**Ghate, V. P.** and P. Kollias, 2016: On the controls of daytime precipitation in the Amazonian dry season. *J. Hydrometeor.*, **0**, doi: 10.1175/JHM-D-16-0101.1.

Wood, R., M. Jensen, J. Wang, C. Bretherton, S. Burrows, A. Del Genio, A. Fridlind, S. Ghan, **V. Ghate**, P. Kollias, S. Krueger, R. McGraw, M. Miller, D. Painemal, L. Russell, S. Yuter, and P. Zuidema, 2016: Planning the Next Decade of Coordinated Research to Better Understand and Simulate Marine Low Clouds. *Bull. Amer. Meteor. Soc.*, **97**, 1699–1702, doi: 10.1175/BAMS-D-16-0160.1

Albrecht, B. A., M. Fang, and **V. P. Ghate**, 2016: Exploring stratocumulus cloud-top entrainment processes and parameterizations by using Doppler cloud radar observations. *J. Atmos. Sci.*, **73**, 729-742.

**Ghate, V. P.**, M. A. Miller and P. Zhu, 2016: Differences in tropical and trade wind cumulus topped marine boundary layers. *Mon. Weather. Rev.* **144**, 681-701.

Collow, A., **V. P. Ghate**, M. A. Miller and L. Trabachino, 2015: A one-year study of the diurnal cycle of meteorology, clouds, and radiation in the West African Sahel region. *Q. J. R. Meteorol. Soc.* doi: 10.1002/qj.2623

**Ghate, V. P.**, Mark A. Miller, B. A. Albrecht and C. W. Fairall, 2015: Thermodynamic and radiative structure of stratocumulus topped boundary layers. *J. Atmos. Sci.*, **72**, 430-451

Wood, R. and co-authors, 2015: Clouds, aerosols and precipitation in marine boundary layer: An ARM mobile facility deployment. *Bull. Amer. Meteor. Soc.*, **96**, 419-440.

Fang, M., B. A. Albrecht, **V. P. Ghate** and P. Kollias: Turbulence in continental stratocumulus part I: External forcings and turbulence structures, *Bound. Layer. Meteor.* doi 10.1007/s10546-013-9873-3

Fang, M., B. A. Albrecht, **V. P. Ghate** and P. Kollias: Turbulence in continental stratocumulus part II: Eddy dissipation rates and large eddy coherent structures, *Bound. Layer. Meteor.* doi 10.1007/s10546-013-9872

**Ghate, V. P.**, B. A. Albrecht, M. A. Miller, A. Brewer and C. W. Fairall, 2013: Turbulence and radiation in a stratocumulus topped marine boundary layer: A case-study from VOCALS REx, *J. Appl. Meteor. Climatol.*, **53**, 117-135

Miller, M. A., **V. P. Ghate** and R. Zahn, 2012: The radiation budget of West African Sahel and its controls: A perspective from observations and global climate models, *J. Climate*, **25**, 5976-5996.

Moran, K., S. Pezoa, C. W. Fairall, C. Williams, T. Ayers A. Brewer, S. P. deSzoek and **V. Ghate**, 2011: A motion-stabilized w-band radar for shipboard observations of marine boundary-layer clouds. *Bound. Layer. Meteor.*, doi:10.1007/s10546-011-9674-5

Zheng, X., B. Albrecht, H. H. Jonsson, D. Khelif, G. Feingold, P. Minnis, K. Ayers, P. Chuang, S. Donaher, D. Rossiter, **V. P. Ghate**, J. Ruiz-Plancarte, and S. Sun-Mack, 2011: Observations of the boundary layer, cloud, and aerosol variability in the southeast Pacific

coastal marine stratocumulus during VOCALS-REx, *Atmos. Chem. Phys.*, **11**, 9943-9959, doi:10.5194/acp-11-9943-2011.

**Ghate, V. P.**, M. A. Miller and L. DiPretore, 2011: Vertical velocity structure of marine boundary layer trade wind cumulus clouds. *J. Geophys. Res.* **115**, D23201, doi:10.1029/2010JD014400.

Zhu, P., B. A. Albrecht, **V. P. Ghate** and Z. Zhu, 2010: Multiple scale simulations of stratocumulus clouds. *J. Geophys. Res.*, **115**, D23201, doi:10.1029/2010JD014400

**Ghate, V. P.**, B. A. Albrecht and P. Kollias, 2010: Turbulence structure of non-precipitating continental stratocumulus clouds. *J. Geophys. Res.*, **115**, D13204, doi:10.1029/2009JD013091.

**Ghate, V. P.**, B. A. Albrecht, C. W. Fairall and R. Weller, 2009: Climatology of surface meteorology, surface fluxes, cloud fraction and radiative forcing over South-East Pacific from buoy observations. *J. Climate*, **22**, 5527–5540.

Rauber, R. M. and co-authors, 2007: In the driver's seat: RICO and education. *Bull. Amer. Meteor. Soc.*, **88**, 1929-1937.

**Ghate, V. P.**, B. A. Albrecht, P. Kollias, H. H. Jonsson and D. W. Breed, 2007: Cloud seeding as a technique for studying aerosol-cloud interactions in marine Stratocumulus., *Geophys. Res. Lett.*, **34**, L14807, doi:10.1029/2007GL029748.

### **PUBLICATIONS IN PREPARATION**

**Ghate, V. P.**, P. Kollias, and multiple coauthors: Vertical air motion in the atmosphere, modeling needs and observational challenges. *to be submitted to Bull. Amer. Meteor. Soc.*

### **PRESENTATIONS AND INVITED TALKS**

Ghate V. P., Controls of precipitation during the Amazonian dry season. Rutgers University, November 4, 2016.

Collis, S., J. Helmus, R. Kotamarthi, J. Wang, Y. Feng, and **V. P. Ghate**, 2016: Open science: investigating precipitation cycles in dynamically downscaled data using openly available radar data and open source software. *EGU General Assembly, Vienna Austria*.

Vivekanandan, J., J. Jensen, S. Ellis, B. Morley, P. Tsai, S. Spuler, **V. P. Ghate** and C. Schwartz, 2016: Estimation of droplet size and liquid water content using radar and lidar: marine cumulus clouds. *EGU General Assembly, Vienna Austria*.

Albrecht, B. A., P. Zuidema, C. S. Bretherton, R. Wood, and **V. P. Ghate**, 2015: Cloud System Evolution in the Trades – CSET. *AGU Fall Meeting*.

**Ghate, V. P.**, M. A. Miller and P. Zhu, 2015: Similarities and differences in tropical and trade-wind cumulus topped marine boundary layers. ARM/ASR Joint user facility PI meeting. Vienna, VA.

**Ghate, V. P.**, M. P. Jensen and T. Toto, 2014: Transport of mass and water vapor in cumulus topped boundary layers: A case-study from ARM Darwin facility. *AGU Fall Meeting*.

**Ghate, V. P.**, M. P. Jensen, 2014: Transport of mass and water vapor in cumulus topped boundary layers: A case-study from ARM Darwin facility. *ASR working group meeting*.

**Ghate, V. P.**, M. A. Miller and B. A. Albrecht, 2014: On the dynamics and radiation of cumulus topped marine boundary layers. *Warm Low Cloud Thematic Group Breakout Session. ASR PI meeting 2014*.

Collis, S., S. Giangrande, K. North, **V. P. Ghate**, J. Helmus, A. Theisen, 2014: Prove It! ARM's progress towards a suite of verified precipitating cloud system retrievals. *ASR PI Meeting 2014*

Collis, S., J. Helmus, J. Leinonen, S. Giangrande, **V. P. Ghate**, C. Sivaraman, K. Gaustad, N. Bharadwaj, J. Monroe and B. Ermold, 2014: Data fusion in remote sensing in the ARM program using Python, *Fourth Symposium on Advances in Modeling and Analysis Using Python, American Meteorological Society Annual Meeting*, Atlanta, Ga.

**Ghate, V. P.**, 2013: Thermodynamics and radiation in stratocumulus topped boundary layers, *Department of Atmospheric and Oceanic Sciences*, McGill University, Montreal Canada.

**Ghate V. P.**, S. G. Decker and Mark Miller, 2013: Velocity scaling in stratocumulus topped boundary layer, 4<sup>th</sup> *ASR Science team meeting*, Potomac, MD

**Ghate, V. P.** and J. Comstock, 2013: Past year activities of the ASR vertical velocity focus group. 4<sup>th</sup> *ASR Science team meeting*, Potomac, MD

**Ghate, V. P.**, 2013: Dynamics, thermodynamics and radiation in a stratocumulus topped boundary layer. *Invited talk* Argonne National Lab, Argonne IL.

**Ghate, V. P.**, R. Coulter, J. Helmus and T. Martin, 2014: Updates on ARM RWP work at ANL. *ARM Radar Science Meeting, Miami FL*

Decker, S. G., **V. P. Ghate** and M. A. Miller, 2013: Large Eddy Simulations over Cape Cod in support of the ARM Two-Column Aerosol Project. *11th symposium on the coastal environment*.

M. A. Miller and **V. P. Ghate**: Unraveling the life-cycle of low clouds. 2012 ASR Fall working group meeting. Rockville, MD

Zhu, P. and **V. P. Ghate**, 2012: Evaluation of parameterizations of the vertical fluxes induced by boundary-layer clouds using ARM observations and high resolution simulations. *3<sup>rd</sup> ASR Science Team Meeting*, Arlington, VA

Fang, M., B. A. Albrecht, **V. P. Ghate** and P. Kollias, 2011: A case study on turbulence in continental stratocumulus clouds. Annual ASR working group meeting, Annapolis, MD.

**Ghate, V. P.** and M. A. Miller 2011: Regimes of boundary-layer structure in the Azores using data from the ARM mobile facility. Extended abstracts, *2<sup>nd</sup> annual ASR science team meeting*, San Antonio TX.

Fang, M., B. A. Albrecht, P. Kollias and **V. P. Ghate**, 2011: Turbulence estimates in continental Stratocumulus using ARM cloud radar observations. *35<sup>th</sup> Conference on Radar Meteorology*.

Fairall, C. W., K. Moran, S. Pezoa, D.E. Wolfe, S. de Szoeke and **V. P. Ghate**, 2010: A new motion-stabilized W-band (94-GHz) cloud radar for observations of marine boundary-layer clouds. *15<sup>th</sup> International Symposium for the advancement of boundary layer remote sensing*. Paris, France.

Fairall, C. W., S. P. de Szoeke, A. Brewer, P. Zuidema and **V. P. Ghate**, 2010: Retrieval of cloud microphysical and turbulence profiles using the NOAA/PSD W-band cloud radar from R/V Ronald H. Brown during the VOCALS-REx field program. *19<sup>th</sup> Symposium on Boundary Layers and Turbulence*.

**Ghate, V. P.**, B. A. Albrecht and P. Kollias, 2008: Turbulence structure of continental boundary layer clouds. 2008 Annual ARM Science Team Meeting, Norfolk, Virginia

**Ghate, V. P.**, B. Albrecht, P. Kollias, H. Jonsson and D. Breed, 2006: Cloud seeding as a technique for studying aerosol-cloud interactions in marine stratocumulus. 2006 Annual ARM science team meeting, Annapolis Maryland

#### **STUDENT ADVISING AS PRIMARY ADVISOR**

**Jacob Carlin**, Rutgers University undergraduate honors thesis, 09/2011 – 05/2012

#### **STUDENT ADVISING AS COMMITTEE MEMBER**

**Allison Collopy**, Rutgers University [PhD Dissertation Committee], 2013-2015

**Matthew Niznik**, Rutgers University [Oral Comprehensive Exam Committee], 06/2012

**Ross Alter**, Rutgers University [Oral Comprehensive Exam Committee], 06/2011

## **CONFERENCE ABSTRACTS**

Jensen, M. P., S. E. Giangrande, C. Gostic, D. Mechem, T. Toto, and **V. P. Ghate**, 2016: The shallow-to-deep transition in convective clouds during GOAmazon 2014/5, *ARM/ASR Joint user facility PI meeting*.

**Ghate, V. P.**, and P. Kollias, 2016: Precipitation controls during the Amazonian dry season: Observations from the GOAmazon field campaign. *ARM/ASR Joint user facility PI meeting*

Albrecht, B. A., **V. P. Ghate**, P. Kollias, and X. Zheng, 2016: Using ARM Nauru observations to evaluate a cloud-base mass flux parameterization for shallow marine cumuli. *ARM/ASR Joint user facility PI meeting*

Muradyan, P., V. Rao Kotamarthi, R. Coulter, and **V. P. Ghate**, 2016: Estimates of lower-tropospheric divergence and average vertical motion in the southern great plains region. *ARM/ASR Joint user facility PI meeting*

Nguyen, T. K., **V. P. Ghate**, and A. M. Carlton, 2015: Seasonal differences in aerosol water pay reconcile AOT and surface mass measurements in the Southeast US. *AGU Fall Meeting*.

**Ghate, V. P.**, B. A. Albrecht, H. H. Jonsson, and I. PopStefanija, 2015: On the use of radar echo from Chaff to study entrainment in Stratocumulus topped marine boundary layers. *AGU Fall Meeting*.

Mohrmann, J., B. A. Albrecht, C. S. Bretherton, **V. P. Ghate**, P. Zuidema, and R. Wood, 2015: A novel approach to Lagrangian sampling of marine boundary layer cloud aerosol in the northeast Pacific: case studies from CSET. *AGU Fall Meeting*.

Schwartz, M. C., **V. P. Ghate**, J. Vivekanandan, P. Tsai, and S. Ellis, 2015: Retrievals of vertical air motion from the HIAPER cloud radar during CSET. *AGU Fall Meeting*.

Schwartz, M. C., and **V. P. Ghate**, 2015: Transition from Stratocumulus to Cumulus cloud regime: A case-study from MAGIC field campaign. *ARM/ASR Joint user facility PI meeting*.

**Ghate, V. P.**, R. Coulter and P. Kollias, 2015: Climatology of boundary layer depth at the ARM SGP central facility. *ARM/ASR Joint user facility PI meeting*.

**Ghate, V. P.**, M. A. Miller and B. A. Albrecht, 2014: On the dynamics and radiation of cumulus topped marine boundary layers. *2014 ASR PI meeting*.

Troyan, D., K. Johnson, M. Jensen, P. Kollias and **V. P. Ghate**, 2014: WACR-ARSCL: Current status and future plans. *2014 ASR PI meeting*

Miller, M. A., B. Raney, **V. P. Ghate** and S. Decker, 2014: A large eddy simulation of cloud radar observations. *2014 ASR PI meeting*.

Zheng, X., B. A. Albrecht and **V. P. Ghate**, 2014: A numerical study on factors controlling the cumulus cloudiness variations at the ARM TWP Nauru site. *2014 ASR PI meeting*.

Decker, S. D., **V. P. Ghate** and M. A. Miller, 2014: The mesoscale structure of drizzling stratocumulus clouds: Perspective from observations and large eddy simulations, *2014 Annual AMS meeting*, Atlanta Georgia.

**Ghate, V. P.** and M. A. Miller, 2013: Effects of clouds on cross-atmospheric radiative flux divergence: case studies in different cloud conditions. *AGU Fall Meeting*, San Francisco, CA.

**Ghate, V. P.**, Mark A. Miller and B. A. Albrecht, 2013: Thermodynamic and radiative structure of cumulus topped marine boundary layers, *4<sup>th</sup> ASR science team meeting*, Potomac MD.

Newsom, R., **V. P. Ghate**, P. Kollias, L. Berg and J. Comstock, 2013: The Doppler lidar boundary-layer turbulence statistics value-added product, *4<sup>th</sup> ASR science team meeting*, Potomac MD.

Miller, M., **V. P. Ghate**, S. G. Decker and B. Raney, 2013: Forward modeling of radar observables using a large eddy simulation model: A new approach to optimization of cloud radar scan strategies. *4<sup>th</sup> ASR science team meeting*, Potomac MD.

**Ghate, V. P.**, M. A. Miller and B. A. Albrecht, 2012: Thermodynamic and radiative structure of stratocumulus topped boundary layer. *3<sup>rd</sup> ASR Science Team Meeting*, Arlington, VA

DiPretore, L., M. A. Miller and **V. P. Ghate**, 2012: Observation and model comparison of the thermodynamic environment using the microwave radiometer profiler. *3<sup>rd</sup> ASR Science Team Meeting*, Arlington, VA

Wyant, M and co-authors, 2012: Science highlights from the CAP-MBL field campaign at Graciosa Island. *3<sup>rd</sup> ASR Science Team Meeting*, Arlington, VA

Albrecht, B. A., **V. P. Ghate** and P. Kollias, 2012: What controls the fractional cloudiness of fair-weather cumuli in a tropical marine environment? *3<sup>rd</sup> ASR Science Team Meeting*, Arlington, VA

Marquardt, A., M. A. Miller and **V. P. Ghate**, 2012: A one-year study of the diurnal cycle of clouds and radiation in the West African Sahel region. *3<sup>rd</sup> ASR Science Team Meeting*, Arlington, VA

Miller, M. A., **V. P. Ghate**, L. DiPretore and R. Zahn, 2011: The radiation budget of the West African Sahel and its controls: A perspective from observations and global climate models. *Annual ASR working group meeting*, Annapolis, MD.



**Ghate, V. P.**, M. A. Miller and B. A. Albrecht, 2011: Thermodynamic structure of stratocumulus topped boundary layer. *Annual ASR working group meeting*, Annapolis, MD.

Fang, M., B. A. Albrecht and **V. P. Ghate**, 2011: Turbulence Estimates in Continental Stratocumulus Using ARM Cloud Radar Data. Extended abstracts, *2<sup>nd</sup> annual ASR science team meeting*, San Antonio, TX.

Albrecht, B. A, P. Kollias and **V. P. Ghate**, 2011: Controls on cloud base mass flux and cloudiness of fair-weather cumuli in a marine environment. *Extended abstracts, 2<sup>nd</sup> annual ASR science team meeting*, San Antonio, TX.

Miller, M. A., R. Zahn and **V. P. Ghate**, 2011: Pico and Graciosa cloud optical thickness experiment. *Extended abstracts, 2<sup>nd</sup> annual ASR science team meeting*, San Antonio, TX.

**Ghate, V. P.**, B. A. Albrecht, M. A. Miller, C. W. Fairall and A. Brewer, 2010: A case-study on stratocumulus topped marine boundary layer observed during VOCALS-Rex. *Fall meeting, AGU*, San Francisco, Cali, 13-17 Dec

Albrecht, B. A., **V. P. Ghate** and P. Kollias, 2010: Factors controlling boundary layer cloud fraction and mass flux at the ARM Nauru Site. *Extended abstracts, ARM-CONF-2010*, Washington DC

Miller, M. A., **V. P. Ghate** and R. Zahn, 2010: Global climate model performance in west Africa: realizing the goals of RADAGAST. *Extended abstracts, ARM-CONF-2010*, Washington DC

**Ghate, V. P.**, and M. A. Miller, 2010: Morphology and dynamics of non-precipitating marine fair weather cumulus clouds. *Extended abstracts, ARM-CONF-2010, Washington DC*.

**Ghate, V. P.**, B. A. Albrecht and P. Kollias, 2009: Diurnal variations in turbulence and mass-transport in continental boundary layer stratocumulus clouds from millimeter wavelength radar observations. Extended abstracts, *34<sup>th</sup> Conf. on Radar Meteorology*, Williamsburg, VA

**Ghate, V. P.**, B. A. Albrecht and P. Kollias, 2008: Turbulence structure of continental stratocumulus clouds. Extended abstracts, *15<sup>th</sup> Internat. conf. on cloud and precip. (ICCP)*, Cancun, Mexico.

Albrecht, B. A, P. Kollias and **V. P. Ghate**, 2007: Observations and parameterization of boundary layer structures and clouds at ARM TWP Nauru site, *ARM-CONF-2007*, Monterey California.

**Ghate, V. P.**, B. A. Albrecht, C. W. Fairall, R. A. Weller, 2007: Climatology of marine stratocumulus cloud fraction in south-east pacific using surface longwave radiative flux observations. *Eos Trans. AGU*, 88(23), *Jt. Assem. Suppl.*, Abstract A23B-07

**Ghate, V. P.**, B. Albrecht, P. Kollias, H. Jonsson and D. Breed 2006: A new Technique for Studying Aerosol-Cloud Interactions in Marine Stratocumulus., *Eos Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract A33B-1005

**Ghate, V. P.**, I. Jo, E. Serpetzoglou, B. A. Albrecht, P. Kollias and J. B. Mead, 2005: High resolution observations of drizzle from stratocumulus using a 95 GHz FMCW radar. Extended abstracts, 32<sup>nd</sup> Conf. on Radar Meteorology, Albuquerque, NM, Amer. Meteor. Soc., CD-ROM, P1R.1.

## **FIELD EXPERIMENT PARTICIPATION**

### Cloud System Evolution in the Trades (CSET) 2015

- Research flights planned for the summer 2015 using the NCAR's High Performance Instrumented Airborne Platform for Environmental Research (HIAPER) to study transition of stratocumulus to cumulus clouds in the North Pacific.

### Stratocumulus Entrainment and Precipitation Studies (SEPS) 2014

- An aircraft field campaign to study the effects of entrainment and precipitation on marine stratocumulus clouds. I was part of the team responsible for planning and conducting the flights as well as the team for analyzing collected data.

### Southeast Asia Composition, Cloud, Climate Coupling Regional Study (SEAC<sup>4</sup>RS) 2012

- Research cruise conducted off of the coast of Philippines to characterize the aerosol and cloud structure in the region. Responsible for operating cloud radar and lidar.

### Key West Aerosol Cloud Experiment (KWACEX) 2012

- Flight experiment conducted to study aerosol-cloud interaction pertaining to tropical cumulus clouds. Part of a group conducting routine research flights to observe the tropical cumuli.

### Cloud and Precipitation Study (CPS) 2008

- Field campaign to study the cloud and precipitation structure associated with tropical cyclones. Part of the group operating two Doppler cloud radars.

### VAMOS Ocean-Cloud-Atmosphere-Land Study Regional Experiment (VOCALS Rex) 2008

- Multi-institution field campaign conducted to study marine stratocumulus clouds. Part of the science team conducting routine research flights to observe cloud and boundary layer structure over the South-East Pacific region.

### Monterey 2006

- Flight experiment conducted to do cloud seeding experiment in the stratocumulus cloud deck observed in the North-East Pacific. Part of a team to conduct routine research flights.

Stratus 2005 and Stratus 2006;

- Research cruises conducted to overhaul buoy and observe stratocumulus clouds in the South-East Pacific. Responsible for operating cloud radars.

Rain In Cumulus over Ocean (RICO) 2005

- Multi-institution field campaign conducted to study trade wind cumulus clouds over the tropical Atlantic. Part of the scientific crew onboard R/V Seaward Johnson operating cloud radars.

Tropical Atmosphere Ocean (TAO) 2004

- Research cruise conducted to overhaul buoys and to observe clouds over tropical East Pacific. Part of a team operating the meteorological instrumentation onboard R/V Ronald H. Brown.

## **SERVICE**

**Member of Organizing Committee**, Workshop for Lightweight and Low-power Sensors for Environmental Measurements, Argonne National Laboratory, September 20, 2016. <http://www.mcs.anl.gov/~beckman/LowPowerSensors2016.html>

**Instructor** in the first ever ARM summer training and science application event on observations and modeling of aerosols, clouds, and precipitation. National Weather Service, Norman, OK. 07/15-07/24, 2015.

**Session Co-Convener** (with M. Jensen and P. Kollias), Convective Cloud Processes, AGU Joint assembly, Montreal 2015.

**Co-lead** (with J. Comstock, PNNL) of the Vertical Velocity Focus Group (VVFG) within the Atmospheric System Research (ASR) program. 2012 – Present

**Session Co-Convener** (with J. Mather and J. Comstock), Observing and modeling atmospheric vertical motion, American Geophysical Union Fall Meeting, 2013

**Member**, Department of Environmental Sciences graduate admissions committee, 2012 – 2014

Designed and conducted a 5 day workshop aimed to give an overview of instrumentation at the ARM Mobile Facility and the possible usage of the collected data at the Aryabhata Research Institute of Observational Sciences (AIRES), Nainital India, 11/2011

## **PUBLICATION REVIEW SERVICE**

Journal of Atmospheric Sciences

Journal of Atmospheric and Oceanic Technology

Journal of Applied Meteorology and Climatology

Journal of Climate  
Monthly Weather Review  
Bulletin of American Meteorological Society  
Geophysical Research Letters  
Journal of Geophysical Research  
Reviews of Geophysics  
Atmospheric Chemistry and Physics  
Atmospheric Measurement Techniques  
Journal of Atmospheric Research  
Boundary Layer Meteorology

### **GRANT REVIEW SERVICE**

National Science Foundation Physical Meteorology Program  
National Science Foundation Atmospheric Chemistry Program  
Department of Energy – Atmospheric System Research Program  
Department of Energy – Wind Technology Program

### **PROFESSIONAL AFFILIATIONS**

American Meteorological Society (AMS)  
American Geophysical Union (AGU)  
Department of Energy (DOE)'s Atmospheric Radiation Measurement (ARM) program  
DOE Atmospheric System Research (ASR) Program